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VICKS MAGAZINE

VOL. 21

ROCHESTER, N. Y., JANUARY, 1898

No. 3

APARTMENT PLANTS.

THE peculiar value of handsome plants for room decoration is well recognized and such objects are always in demand for this purpose. The hall, the drawing-room, the common sitting-room, the dining-room and the private apartment, all, as they are opened to us show their specimens of plant beauty. Nor is this all, for the shop windows of the tradesman when in their most attractive form are heightened in effect by plant display, and either plants or flowers, or both, are demanded for the church and the lecture room.

By the term apartment plants is not meant that general collection of plants which many housekeepers busy themselves with, and which are commonly designated as house plants. This collection is usually a miscellaneous one, many of the plants being merely stored to keep over from fall to spring and then to be placed in the garden. But in such collections, and especially those of good plant-growers, there are often some fine display plants.

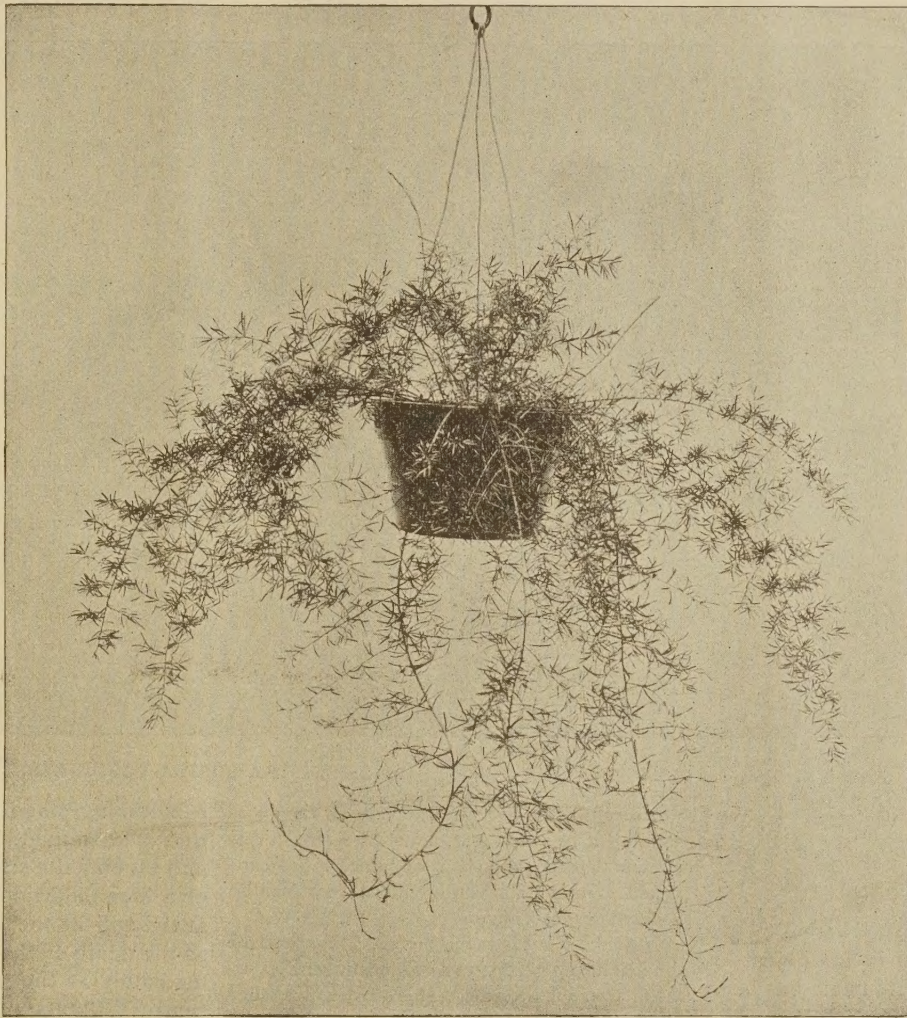
The general collection of house plants should always be kept in the place most suitable for them, and where, being usually in sight, or at least where they can easily have supervision, they can be given the attention which they constantly demand. They in fact constitute a nursery, but apartment plants may be considered as in gala dress and out on exhibition.

The term apartment plants may be used in a broad and in a restricted sense; in the former it would include any plants which by their development and beauty would appear attractive objects for a single occasion or for a longer time; in the latter sense it would apply to those which, by their peculiar constitution, are capable of remaining in good form for a considerable length of time while subjected to those conditions, more or less unfavorable to their existence, which apartments afford.

An appropriate apartment plant must be one that is in good

health and good form, and noticeable for its vigor, its handsome foliage or its beautiful flowers, or for all these attractions combined. It must have been raised with the end in view of its

being an admirable object. Many plants make a fine show when massed together which taken singly would present but a shabby appearance; the character and the condition of the apartment plant must be far superior to such specimens. In fact, a suitable apartment plant must show not only good breeding but also good training. One who would raise a good apartment plant must strive to be a good plant cultivator. He must have a high ideal standard and work to it. The great deficiency of our amateur plant-growers is their low ideals of plant productions. The standards should be raised, and perhaps our agricultural fairs and horticultural shows may help in this respect by offering prizes for plants suitable for apartment decorations. A person who would



From a Photograph.

ASPARAGUS SPRENGERI.

give attention to raising a few plants of this character would become a better cultivator of plants generally, would have greater success in his garden, and his enjoyment in connection therewith would increase with his attainments. Every enthusiastic plant-grower is sensible of the pleasures of this employment which are far more than commensurate with its cares.

But there are those so constituted, or so situated, that they cannot themselves raise their own plants, but they would not on this account be deprived of these beautiful objects. They must, therefore, resort to the commercial plant-grower or florist to supply their wants. As it has been noticed, that only plants which have been highly developed should be used for apartment decoration, so it may be said that when, after a longer or shorter time, these plants begin to fade or lose their attractive appearance they should be removed without delay and be discarded or remanded to the nursery or the florist for recuperation.

A shabby plant should never retain a prominent position. Under conditions where it fails it will not again resume its beauty, and the proper course is to promptly dismiss it and replace it with another that is suitable. A fine plant of chrysanthemum or azalea, or gloxinia or begonia or any other in full bloom may be desirable for a time while in perfection, but as soon as its glory is passed let it be set aside. Some plants, which are particularly handsome in their foliage, are specially desirable as apartment plants. Such are the two of which illustrations are now presented. *Asparagus Sprengeri*, as will be seen, can be well grown as a basket plant, but it also makes a fine specimen when pot grown. Its foliage is admirable. The *Aspidistra* is an excellent window plant, and endures, without injury, in situations where many other kinds of plants quickly fail. Given a good light, a temperature anywhere above freezing and below 90° and a good supply of water, and it appears to thrive; of course, a medium temperature is best for it, but it is very hardy. Its graceful leaves are very enduring and in time an old plant displays a mass of foliage. *Aspidistra lurida* has a plain green leaf, while the variety here figured, *A. lurida variegata*, has leaves variously striped with white.

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THE CENTURY PLANT.

THE Century plant is an object of special interest. Its name has been acquired by the impression that it must be a hundred years old before it blooms. By many proofs we now know this not to be true, but there is a foundation for the belief in the fact that the plant requires many years to arrive at a blooming stage; the exact blooming age differing with each plant according to vigor, soil and climate. The usual span of life of the Century plant, *Agave Americana*, when pot grown, in general terms may be stated as thirty-five to fifty-five years. It is remarkable that a succulent or herbaceous plant should live to so great an age before blooming—an age far greater than that required by forest trees to come into bloom and bearing. Another remarkable fact in connection with the Century plant is

that when it has bloomed the whole plant perishes. Similar instances are found in some palms. The following sprightly account of the blooming of a Century plant was published a few months since in the *New York World*:

Nearly three months ago a century plant in the greenhouse of J. Condon, near Greenwood cemetery, sent forth a flower shoot. The plant, with many others of its kind which Mr. Condon had received from Mexico, had been lying untended in a corner of the greenhouse, and when one of the employes told the proprietor that it was behaving in an unusual manner Mr. Condon supposed at first that it was merely developing a new leaf shoot. After three days, during which time the pale green point had ascended one foot, he changed his mind, and had the century plant moved out in a sunny spot. It

that this plant came into his possession in 1858, and at that time it was twenty years old. It was, accordingly, fifty-one years old when it blossomed. When received it was placed and afterward kept in his greenhouse. In the year 1886 the roots were allowed to penetrate the soil beneath the house, and at the same time plenty of water and rich food were given it, with the hope of bringing it into bloom. After three years of this treatment, in May, 1889, the flower-stalk began to grow. At the end of one month it had reached to the top of the greenhouse at its highest point, and then an opening was made for it to pass through. The lowest buds opened on the first of September, the others opened successively until October

13th, when the topmost bud expanded. The blossom is described as greenish-yellow, about the size and shape of a tuberosé flower, and neither fragrant nor beautiful. Each flower retained its freshness about a week. At the time of blooming the plant had the following measurements: Height of foliage, two feet six inches; height of flower stalk, twenty-nine feet; circumference of stalk, at its base, twelve inches. It contained fifteen branches and 1,551 flower buds. This plant, which is so long in arriving at



From a photograph.

ASPIDISTRA LURIDA VARIEGATA.

was carefully tended and watched, for the blossoming of one of these plants is so rare in this climate that the occasions on which it has happened in this state within fifteen years can be counted on one's fingers.

Now the plant is in full bloom. It has reached the height of twenty-five feet, and fifteen feet up the first branch appears. There are twelve other branches above this. Each branch is decorated with corn-colored flowers, hanging in clusters like the familiar *Begonia rubra*. These flowers are more curious than beautiful, their pale hue unfitting them for an ornamental flower. For a month the flowers remain; then they fall, and where they alight hundreds of little Century plants will spring up. With the falling of the flowers and the consequent propagation of the species, the plant, which has lived perhaps seventy or eighty years to this end and purpose, dies. First, its leaves swell enormously, then they wither away, and all that remains of the mother plant is the round spike-like stem, hardened to a stony consistency.

The plant shown in the smaller engraving is one that bloomed in 1889 on the grounds of Mr. W. M. Darlington of Pittsburgh, Pa. Mr. Darlington informed us

a blooming stage is, in one respect, like that of an annual which grows from a seed and blooms the same year and then dies, or a biennial, which dies after blooming at the end of the second year, inasmuch as the death of the individual occurs immediately at the close of the blooming season. Plants of this character have been called by botanists *monocarpic*, that is, bearing seed but once. As has been noted this feature exists in some palms. One of these is the Talipot palm. In the "Natural History of Plants," by Kerner and Oliver, is the following statement in regard to the Talipot palm, *Corypha umbraculifera*:

This remarkable diœcious palm grows comparatively slowly; its caudex often takes thirty to forty years before attaining a height of twenty metres (65 feet) and during that period flowers never appear. Not until the caudex has attained its full size of twenty-two metres (72 feet) does the inflorescence spring from its apex, the rachis reaching an additional height of fourteen metres (45 feet). Twelve or thirteen rounded branches are given off from this rachis the longest of

which becomes six metres (20 feet) long. All the branches terminate in numerous branches and twigs, and are richly covered with flowers. The whole inflorescence when grown exhibits the fabulous height of fourteen metres (45 feet), with a breadth of twelve metres (40 feet). As soon as the flowers open, the fan-like foliage-leaves below begin to fade and often all fall off during the flowering period, so that the shaft alone remains, bearing the inflorescence at its apex. The flowering period lasts for three or four weeks. As soon as it is over and the fruits matured, the whole plant dies down, as in *Agave Americana*.

The Century plant is a native of Central America and has been under cultivation for nearly 350 years. In Southern France, Spain, Italy, Algiers and countries with similar mild climates it flourishes in the open air. At the north it requires a greenhouse in winter. In summer the plants in pots or tubs are usually placed out on the lawn as ornaments. There are varieties having the leaves striped with white and with light yellow.

The culture is very simple. During the winter, kept in a low or moderate temperature, but little water is required, but on arrival of warm weather, it should be liberally supplied. From the infrequency of seed production an increase by means of seeds can seldom be made, but the plant naturally sends out runners or offshoots by which means it is propagated.

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NITRAGIN.

Under this trade name a German firm is sending out a peculiar new fertilizing material, which is none other than the bacterial organisms that work on the rootlets of leguminous plants, forming the nodules which appropriate the free nitrogen of the air and make it available for their use, increasing their growth. At the risk of repeating what most of our readers probably know about the formation of root nodules, a very interesting account in regard to them by C. F. Townsend, in *Knowledge*, is here given, as, also, his further account of the introduction into commerce of the new fertilizing material, which has already received some trials in England with satisfactory results:

The extent to which even the larger animals are dependent on insignificant creatures that can only be distinguished under the high powers of the microscope is hard to realize. The longer we live the more we find out that many of these tiny organisms, far from being the harmful parasites they were once thought to be, are absolutely essential to the lives of their hosts. In our own blood are numerous small animals, called white corpuscles, that resemble in everything but size the animals known as *Amœbæ* that live in pond water. These white corpuscles, except that they cannot get out of our blood or live anywhere else, are as independent as we are. In diseases the destructive bacteria do not seem to be able to work alone in many cases, but require the assistance of other bacteria to prepare the ground for them, as it were. One of the most remarkable instances of this mutual dependence between higher and lower

order of beings lies in the vegetable world, and is concerned with the way certain families of plants obtain a portion of their food. The existence of the organisms that play a part in this particular co-operative arrangement is perhaps the most important discovery that has been made for many years, and should be of immense interest to agriculturists and others—all others.

For a long time botanists have been puzzled by the outgrowths or nodules that occur on the

not known. Within the last few years it has been found that leguminous plants, (peas, beans, etc.), had the power of making use of the free nitrogen of the air, and that the nodules on the rootlets were the channels through which the nitrogen was secured. Further investigation brought to light a very complicated and interesting state of affairs in these rootlets. In a thimbleful of soil there are many millions of tiny organisms, with which the root-hairs of the



From a photograph.

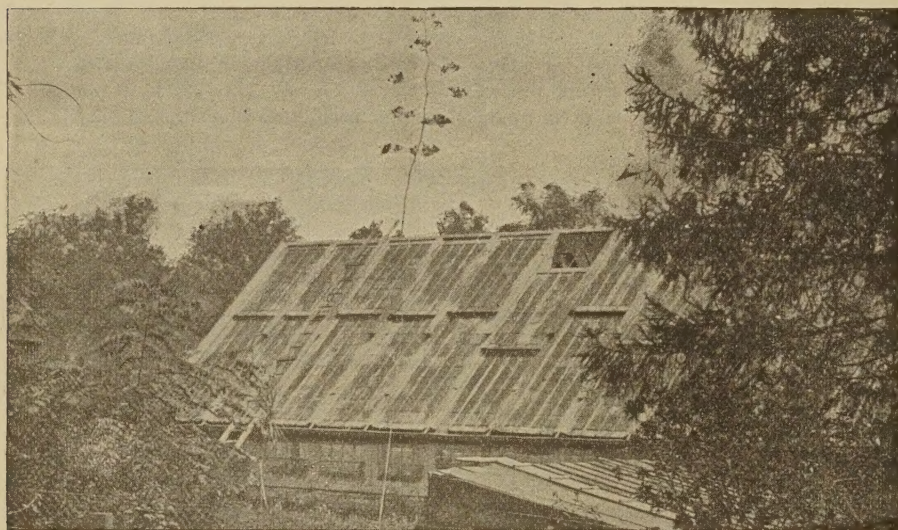
CENTURY PLANT
GROWN AT ALHAMBRA, CAL.

rootlets of plants belonging to the bean and pea family. Another curious thing about these plants is that to grow a crop of peas, beans, or tares, is as good for the land as a strong dose of manure, and many farmers, especially on the continent, have adopted the routine of growing such a crop previous to sowing the land with wheat or other grain. The benefit obtained by doing so was obvious, although the reason was

plant come into close contact. These organisms—or, rather, some of them—invade the substance of the root-hairs, and stimulate the tissues to form overgrown cells, which make up the nodules we have spoken of above. As fast as the cells are formed, they are occupied by quantities of organisms, which do not injure the cells, but seem to stimulate them to intense action. The result of all this is that, in a man-

ner we do not yet understand, nitrogen is absorbed from the air in considerable amount. When the plant finds in the soil sufficient nitrogenous food (nitrates, ammonium sulphate, or

as phosphates and potash, must be supplied, just as in the ordinary way. Where a particular crop—say of beans—is doing well, it is foolish to expect to improve matters still more by in-



From a photograph.

FLOWERING STEM OF CENTURY PLANT

GROWN THROUGH THE TOP OF GREENHOUSE OF W. M. DARLINGTON, PITTSBURG, PA.

farm-yard manure) to supply its needs, the nodules, although they are still formed, do not take nitrogen from the air, so that the organisms must have some other business besides supplying the plant with nitrogen.

By cultivation in gelatine and selection, it has been found possible to isolate the particular organisms that take part in this curious root-growth. It is found that each plant has its own organism. * * * Red and white clover and other trifoliums patronise eight different forms, although it is possible that these only represent different stages in the growth of the same organism, the final shape being a three-pointed star. The form peculiar to the broad bean is very similar to the last, but two of the arms are branched again. The Vetch prefers a smaller organism than the two preceding; the shape is similar, but all three arms are branched at the ends. The form peculiar to broom is that of a well-formed comma, that of Gorse resembles a badly formed comma, and the organism of Lucerne reminds us of a note of exclamation.

Our German friends, with their usual energy and astuteness in matters scientific, have actually begun to cultivate these organisms, and the great chemical firm of Meister, Lucius & Bruning are offering them for sale commercially. They have chosen for them the unfortunate name of "nitragin," which is certain to be confused with "nitrogen" in this country. In Germany it does not matter, as their name for nitrogen is "stickstoff." Varieties suitable for the common pea and field pea; for vetches and horse beans; for white, yellow and blue lupines; for red, white and crimson clover, alsyke, trefoil, cow-grass, and Lucerne; for sainfoin, and many others, are there cultivated.

By the light of present experience, it is necessary to take the following precautions when using the new inoculating material: The ground must either be inoculated before sowing, or the seed itself must be inoculated, and the organisms sown with the seed. This is important, as the nodules are formed in the early stages of the growth of the plant. As the inoculation only assists the plant to obtain the nitrogenous portion of its food, other manures, such

producing the new material, as it is quite clear that the soil is already inoculated. Further and more elaborate experiments with "nitragin" are being conducted this year, and we hope they will lead to definite rules of conduct being laid down.

One of the most hopeful applications of the new inoculating material is in connection with "clover sickness." It is found in practice that clover can only be grown for a comparatively short time on a particular piece of land; the soil then becomes "clover-sick," and about eight years must elapse before the field can be sown again with clover successfully. The reason for this is unknown, but it may be due to the exhaustion of the organisms that live on the roots, without which the plant cannot thrive. If this be the case, the application of fresh inoculating material will enable the farmer to grow clover every year, if he desires it, off the same plot.

The knowledge of these organisms throws a light on the fact that, as every gardener knows, manure alone, however well-proportioned, is not sufficient for the satisfactory growth of most plants; it is necessary to have a large quantity of decayed vegetable matter present as well. An old garden that has been well looked after produces far better crops than one newly planted, the difference being due in all probability to the quantity of these useful organisms present in the old vegetable soil.

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ASTER DAYBREAK.

THE Daybreak aster, introduced last year, has the past season again justified all the claims that have been made in its favor. It is a strong, vigorous growing variety and produces a great abundance of bloom. The flowers are of large size, globular in form, and of a soft shade of pink; though of symmetrical outline they are very graceful. When pot-grown it makes a handsome specimen plant, and the flowers are fine for cutting and for decorative work.

DOWN BESIDE THE BROOK.

You may talk about your roses in their violet petals glowing,
Or the fair and stately lilies blooming in some sylvan nook,
But they cannot waken memory, a sweet content bestowing,
Like the good old fashioned peppermint that grew beside the brook.

It was there I used to wander in the sunny summer weather,
Where the sweet flag waved its spirals 'mid the rustling rushes dank,
It was there I watched the ground birds build their cunning nests together,
Underneath the leaves and bushes growing out along the bank.

There the same old clump of spruces near the place the brook was flowing,
Where partridge drummed a greeting and the woodcock rapped a call;
There the woody fragrance of the brakes along the hillside growing,
And the snowy tufted clematis that climbed upon the wall.

Oh, it matters not how rare the leaf, nor yet how fair the flower,
They cannot turn the pages back in retrospection's book,
And bring before the vision scenes of happy childhoods' hour,
Like a sprig of that old peppermint that grew beside the brook.

FLORENCE JOSEPHINE BOYCE.



CORYPHA UMBRACULIFERA OR
TALIPOT PALM OF CEYLON.

RAISING STRAWBERRIES.

Henry Jerolaman, known as the New Jersey Strawberry King, has been giving his method in *American Gardening* of raising strawberries profitably—fruit that would sell in the market in preference to that of other growers. After describing the various operations he thus sums up the whole matter:

I have given you my mode of culture for the whole year, and if you follow it, that is set out plants in clean, rich soil, keep clean, mulch in winter if the ground heaves by action of frost; mulch between rows in spring, pick, eat, or sell your fruit, that is all there is in strawberry culture. You cannot fail in strawberry culture unless you have or get poor varieties of plants. Simple, is it not, and plain, all summed up in three lines? Let us repeat and see if we cannot get it in two lines: Rich soil, keep free from weeds by hoeing, protect in winter, mulch in the spring.

To particularize the special points: he always plants in a piece of ground that has been in cultivation one or more years and that is freed from weeds; never on sod land. Enrich the land before planting by plowing in well-rotted stable manure. Plant soon after 1st of September.

In getting the ground ready for setting plants we must always plow the land twice (as our ground is clay bottom and becomes hard and lumpy in dry weather) At the last plowing we do not allow the horse or the man to walk on the plowed land, but they go in the furrow and after every four or five furrows, rake smooth with an iron-tooth garden rake; standing in the furrow we can easily reach the four or five furrows without stepping on the plowed part. When the bed is ready, we use a common ball of white cotton cord or grocer's twine, costing about five cents per ball, stretch our line tight as possible, using a measuring stick at each end of row. Some of our rows are 300 feet or more in length, and if line does not touch land in the center we put it down by putting two sticks across it where too high; then we set just as close to the line as we can without disturbing it. You will be surprised to see how straight the rows are by this means.

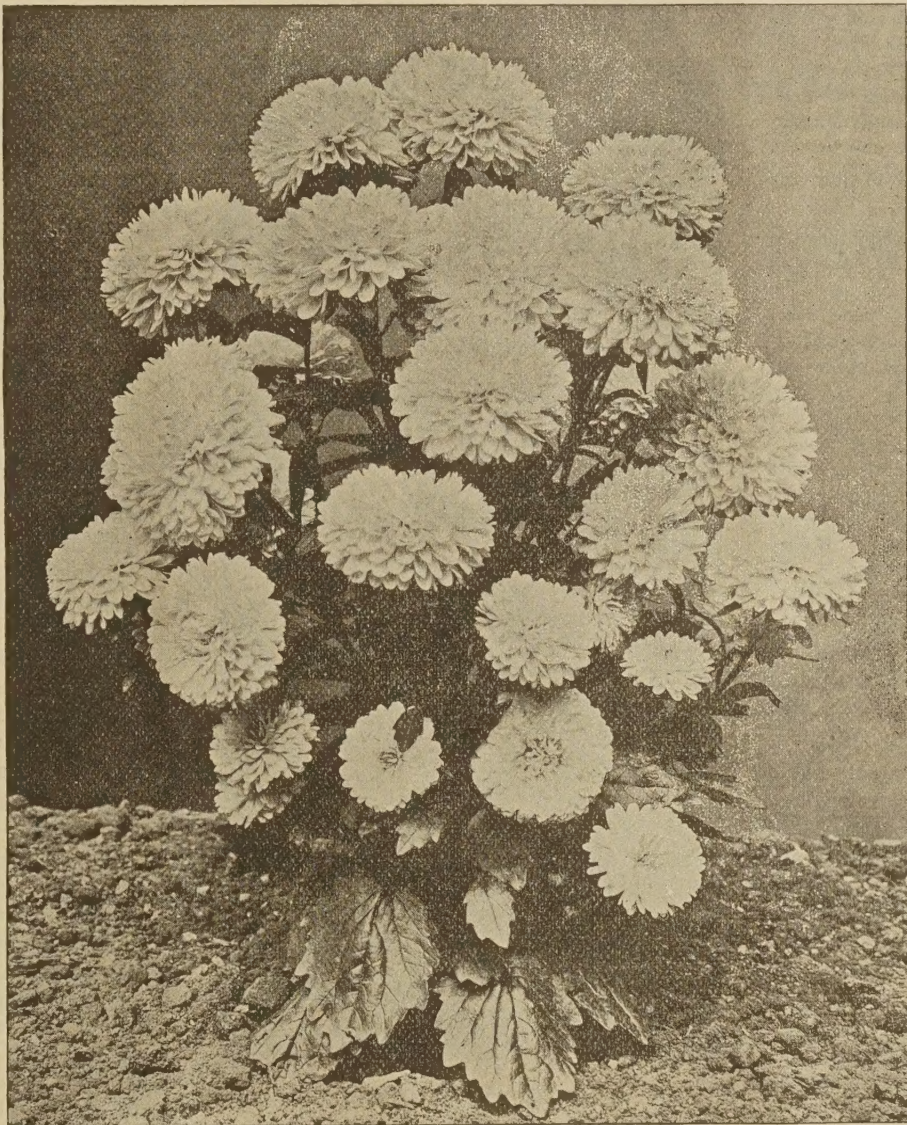
If land is stony we use a common garden trowel, sticking it down first, then opening out the cavity thus made by the hand, taking plant from the plant box with the other hand, and shaking out the roots set it in the cavity made by the other hand or trowel, until the crown of plant is level with the land; then removing my hand or trowel from the cavity I press the soil on other side of the plant with both hands. It is all done in a moment, in much less time than it takes to tell, and I can set out with ease 2,000 plants in less than one day (ten hours) by having some one to take up the plants and carry them to the setting bed for me.

In field culture set the plants always in rows

wet; if set too deep, it will not throw out fruit stems, but long, slender leaves will be all you will ever have on the plant. Many wonder why they have fine plants and no fruit.

If your land is very rich there need not be any manure plowed in (at the time plants are set), but when plants are set and start to grow then cover each side of row close up to the plants, but not so as to cover them, with a good heavy coat of well-rotted manure extending one foot on each side of the row. If well rotted there will not be any weeds to bother you, and, besides, it will protect the plants from that constant freezing and thawing in the middle of days in winter, thus throwing them out of ground.

If set as stated, the plants are properly set and ready to be covered with salt hay as soon as the ground freezes. See that your plants are hoed and cleaned from all weeds and grass before the ground does freeze; this is about December 1st, with me. I cover the plants deep enough with salt hay, or any other kind of mulch that is free from seeds, so that you cannot see them through the hay—one inch is deep enough,—and there is also at least six inches on each side of the plant. I cover nearly the whole surface, as I can get plenty of salt hay here cheap, thirty cents per 100 pounds, delivered; but please remember that you must not ever plant too deeply, or you will smother the plants, rot the leaves, and give protection to field mice to work and burrow among the plants, thus almost destroying your beds. The only necessity for covering the plants at all is that my land will freeze and thaw during warm spells in winter, thus throwing



From a photograph.

ASTER DAYBREAK.

or loosening the roots of plants from the soil, and that the only necessity for covering is to have it just enough to keep the midday sun from thawing the earth around the plants. If the land does not heave or freeze and thaw, then I would not advise any cover at all.

As soon as warm weather in spring opens or grass starts to grow (here it is last week in March or not later than April 5), I remove all covering, stack it, and if any weeds or grass seeds start I cultivate or hoe my plants, then soon as the plants bloom, or just before the last of April or not later than May 5th, I put back the mulch between the rows just as close up to the plants as I can without covering the leaves

Now we have our plants properly set; what I mean by being properly set is that the plants must not be set too deeply, so as to cover the center or crown, nor yet set too shallow; the crown must be set just level with the earth; if too shallow it will dry up and die unless very

or fruit stems; the center or path between the rows is covered at least two inches; this acts for a treble purpose—keeps weeds down, ground moist, and fruit free from sand or dirt during rain storms.

In regard to mulching, to keep the berries clean, Mr. Jerolaman says that the New York buyers have learned to discriminate, and that clean berries always meet with a ready sale.

I saw thousands of quarts in the New York and Newark markets last June, fine berries covered with sand and dirt, sent up by Southern growers, and I can safely say, by some other nearer-by growers, for the people to eat. They did not sell for enough to pay for picking. But people are getting educated and will not eat berries covered with white or black sand, besides sand will not digest, not even in a chicken, and after eating sandy strawberries we generally have a sandy feeling, and in a few days do not like strawberries.

The mulching process, it is claimed, causes the berries to shine.

Now for our secret just as plain and simple, only one word—gloss; this can only be accomplished by mulching, and the best effect I ever saw was by using clean salt hay and freshly mown lawn grass, using the grass just as soon as it had wilted and before it became too dry like hay. The only object in letting it wilt is that we can get it between rows thick enough, and by lifting fruit stems gently so as not to break them, and pushing the wilted lawn grass under the stems, we had strawberries when ripe to look just as if they had been varnished.

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YUCCA FILAMENTOSA.

OUR northern gardens contain no other hardy plant which in appearance is so distinctly tropical as the Yucca. It makes a fine specimen plant standing singly on the lawn, and when in bloom is a grand and beautiful object with its hundreds of drooping white lily-like flowers. Planted in good soil, and with a little space about it kept free from grass and weeds, it will take care of itself. The stem is killed down by the frost, but an annual growth is made, becoming stronger with age. It is well to place a layer of litter about the plant late in autumn, and in spring to dig in some good old manure. Besides the position mentioned for it, it is also suitable for the shrubbery border, or it may form one of a small group of shrubs, or occupy the center of a large flower bed.

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ROSE, MRS. SHARMAN CRAWFORD.

This beautiful pink rose, which is sent out by Messrs. Dickson & Sons, Newtonards, in 1894, has now become established as a general favorite owing to its beautiful color, good habit, and freedom of flowering, and to these recommendations must be added, I think, that it is one of the freest of autumnal bloomers, as the few plants that I have of it have afforded a plentiful supply of good flowers this season.—D., in *The Garden*.

PROMOTING INTEREST IN HORTICULTURE.

INTEREST in horticulture is surely increasing as the years go by, and more is being done each season to promote such interest. The Department of Agriculture has done a good work in this line, not so much by the free distribution of seeds, as by the literature sent out; all the new plants, diseases and insect pests being thoroughly discussed and the remedy for the latter being given as soon as known. The seed distribution has not accomplished the good it might have done, had it been properly regulated. The books published by this department are sent out



YUCCA FILAMENTOSA.

annually, and much valuable instruction can be obtained from them.

The State Experiment Stations, too, are a great help to the cause of gardening; their work is not generally understood, but it is mostly experimental work, all new varieties of plants being grown and thoroughly tested for a certain number of years before being given to the public. Their bulletins can be obtained yearly, and the information obtained from them is often invaluable to the horticulturist.

Not enough interest is taken in this subject in our public schools, the only thing ever done in the line being the study of botany, which is simply a beginning of the

work. The study lasts only a few months at the most, and is taken up during the last two years in the high schools; this I think is a great mistake, as the children will be much more impressed with it, and receive more good from it if the study is taken up earlier in life. To promote interest in horticulture among the children, some special means must be used; to be sure I think successful gardeners are born, not made, yet much can be done to increase the interest. The Horticultural Society of Massachusetts is trying to do this by the following plan: Cash prizes of \$15, \$12 and \$10 are offered for school gardens; these prizes not to be awarded on exhibits of ordinary garden plants, but on wild plants such as ferns, fancy grasses, violets, asters, vegetables and grains. Prizes are also awarded on herbariums made up by the school children. This plan cannot fail to awaken interest among the little folks, as the desire to be first in everything is as strong in them as in those of larger growth.

The Germans, always noted for their love of flowers, have started a school of gardening for girls in one of the suburbs of Berlin. There are several pupils, who wear a uniform of dark gray material, consisting of a bodice and skirt, the latter being made in such a way that it can be shortened at will when at work; they do all the work of the garden, raising vegetables, flowers and fruit, for all of which a ready sale is found. Many of them are fitting themselves for head gardeners, and some have already left the school to go to such places. In a large place where under gardeners are kept, there seems to be no reason why women cannot fill the position of head gardeners, if they fit themselves for the work.

In Russia it is a common custom to have school gardens in connection with the village schools; the use of the land is given by some landlord or hired by the government, and the small expenses connected with the work are also provided for in the same way. The work is taught regularly in the schools, usually by the

schoolmaster, who has received his instruction from some practical gardener. Some sections of the country being treeless, the work is almost entirely devoted to the raising of trees, which are given out among the children, when of sufficient size, to plant at their homes. In other places, grapes are the principal crop, while in others, silk worms are raised and mulberry trees cultivated for them to feed on.

The establishment of Arbor Day, too, has its effect on the mind of the children, and in places where it is properly celebrated, it is a help to everybody.

A prominent florist of this place got up

a chrysanthemum show two years ago, that did more for the cause of flower raising in the city than any thing else had ever done. In early spring he gave a small chrysanthemum plant to every Sunday school child and promised them prizes for the best plants grown of each variety; the show was to be held in late autumn at the time when the greatest number of sorts were in bloom. Printed slips giving directions for culture were sent out with the plants, and those who wished to buy others to raise in competition for prizes were allowed to do so. The chrysanthemum fever raged hard all summer, and in November the show was held in a large hall, a small admission fee being charged.

Long may they wave! and also anything else that promotes interest in the grandest work man has to do.

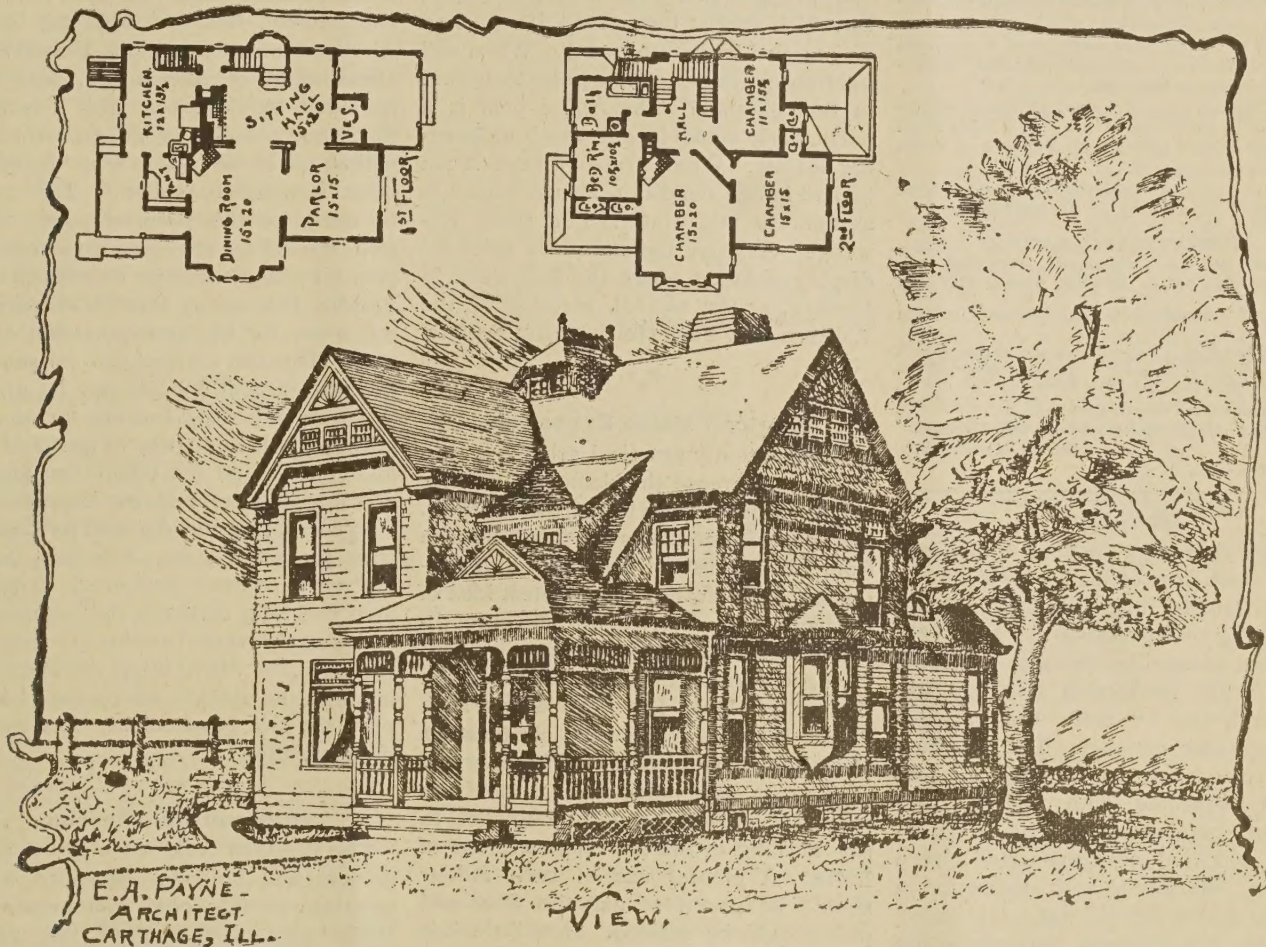
BERNICE BAKER.

A GOOD FRAME HOUSE.

This is a design for a well-built frame residence with all the modern improvements. The entrance is from the front veranda, whence a door opens into a vestibule of suitable size, which opens into the sitting hall. This room is of good size and contains a neat ornamental staircase. The parlor on the left is quite large and is connected with the sitting hall by a wide sliding door. The dining room is large and is connected with the

a bathroom and dressing room. One chamber is furnished with an open fireplace and mantel. A stairway leads from the hall to the attic overhead.

The house is finished with white pine throughout, all in natural color. The frame is of the usual construction, containing only first-class material and workmanship. First story is weatherboarded, while the second story and gables are shingled. The house is well plumbed and heated with furnace placed below the hall and connected with the principal rooms. Height of ceilings: Cellar seven feet, first story ten feet, second story eight and one-half feet, in the clear. The house can be built thus complete for \$2,500.



Chrysanthemums of every kind and color were there, and every florist in the city was given a space in which to make an exhibit and compete for special prizes, also having the privilege of selling plants on the last evening of the show. The prizes for the amateurs were donated by the manufacturers and merchants of the place, and ranged in value from \$15 to \$1, there being about seventy-five in all. The awards were made by a committee of florists and gardeners, and the proceeds given for charity. Since then almost every family grows chrysanthemums, and the rage for them does not seem likely to end until some more popular flower appears.

Our floral and gardening periodicals are doing a good work in promoting interest in horticulture, each number being really worth more than a year's numbers cost.

parlor and hall by wide sliding doors, so that on occasion these rooms can be thrown together. In the hall is a cozy arched recess containing a fireplace; there is also a fireplace in the dining room. The kitchen is so situated as to be convenient of access and at the same time so arranged as to prevent the noise and smells of cooking from entering the other rooms, having two doors between it and any room connecting with it. The pantry, between the kitchen and dining room, is well fitted with shelves, bins and pastry table, and china closet. A stairway leads to the cellar from a small room opening off the kitchen. The back stairs to the second story is enclosed, having doors at the bottom and top to prevent smells from reaching that floor. On the second floor are four good rooms, besides

ROSE MADAME GABRIEL LUIZET.

This splendid rose was introduced as far back as 1887, and since that time many excellent Hybrid Perpetuals have appeared, but yet for exhibitors it still retains the proud position of being second best pink rose in this class, the premier place being generally accorded to Mrs. John Lang. The color of Madame G. Luizet is a clear and delicate silvery pink with white-edged petals, globular in form and pointed center. It is also sweet-scented, a quality that enables this rose to take precedence over the lovely Baroness Rothschild, whilst its extra vigorous growth is all that one could desire.—*Philomel, in The Garden.*

THE VEGETABLE GARDEN.—Farmers and fruit-growers who are troubled to make ends meet, will find that every day's work put into the garden to the extent of providing a full supply of choice vegetables for the table, the year round, will improve the appearance of the balance-sheet at the end of the year.



ROCHESTER, N. Y., JANUARY, 1898.

Entered in the Post Office at Rochester, N. Y., as second class mail matter.

CHARLES W. SEELYE, Editor.

ELIAS A. LONG, Associate,
(formerly conductor of *Popular Gardening*).

Publishers are invited to use any articles contained in this number, if proper credit is given.

Vicks Illustrated Monthly Magazine is published at the following rates, either for old or new subscribers. These rates include postage: One copy one year, in advance, Fifty Cents. One copy for twenty-seven months (two and one-fourth years), full advance payment, One dollar. **A Club** of five or more copies, sent at one time, at Forty Cents each, without premiums. Neighbors can join in this plan.

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H. P. HUBBARD, M'gr.

Obituary.

Oliver Landreth, a member of the well-known seed firm of David Landreth & Son, of Philadelphia, died suddenly on the evening of November 21, 1897. He was a man of notable business rectitude, of fifty years' connection with the firm mentioned, and for more than sixteen years its senior member. The deceased was sixty-seven years of age. He was actively connected with various business and social organizations in Philadelphia, and in all of them exerted a large influence. He served with distinction in the army during the civil war. It is understood that his business interests in the seed firm will be continued by his family.

* *

Handsome Specimens of Pears.

The editor of this journal was the pleased recipient, early in December, of a basket of beautiful Anjou pears from Ellwanger & Barry, of this city. They were all splendid specimens, showing the effects of good cultivation, and care in gathering, keeping and ripening. There ought to be a demand for a great quantity of such fruit in the winter season, but practically the market is bare of it. Even of the late fall pears, what a poor figure they cut in the market. The growers gather them and offer them for sale while yet hard and of a green color, and in this form they appear at the grocers, often standing about for many days or even

some weeks, wilting, withering and perhaps in some cases taking on a pale yellow cast, spotted dark in bruised places. And at the fruit-stands where the fruits are sold singly, and where one would expect to get something choice, the condition of this fruit is no better. The fact is neither growers nor dealers take proper care of the fruit. Either they do not know how to do so, or think there is no profit in such care. The fruit-grower who will raise fine late autumn and winter pears and handle them properly, keeping them in well constructed fruit rooms until well colored and ready for use, will find a demand for them at handsome prices. The specimens noted above were, each one, wrapped in a piece of manilla paper, by which means they could be packed and carried without bruising. When will our fruit-growers send fine pears to market in this manner? The Anjou pear is a particularly valuable one as a long-keeping variety. When properly kept it can be had in fine condition for use from late autumn to mid-winter. For years Ellwanger & Barry have made a splendid display of Anjou pears, the last week in January, at the annual meeting of the Western New York Horticultural Society.

* *

American Maize Exposition.

An apparently practical scheme is proposed to increase the demand for corn, and thus benefit the American farmer. This greater demand is expected to ensue from a larger use of corn and corn products. How few have the faintest idea of the wonderful variety of attractive, toothsome, dainty and healthful ways in which corn and corn products can be served on the table! How few realize that such dishes are one of the very cheapest as well as the best of foods! If this is true of America, how much truer is it of the masses in Great Britain and Europe, to say nothing of the famished millions of India? A greater use of corn fodder should be promoted and the fiber and pith should be utilized. How little it is yet known that every part of the corn stalk can be profitably employed; that when ground up and the fibrous portion separated from the pith a valuable cattle food is produced, and that the pith can be converted into cellulose, a substance of great importance and of a world-wide market! Corn-pith cellulose is now in use as a packing material for the coffer dams of war ships, and for this purpose is superior to any other substance; but its use for this purpose is a minor one, in a commercial view. It is the most perfect non-conductor known, and as such has been employed for the covering of steam pipes and boilers to prevent radiation, and with results far better than any other material so used. For purposes of refrigeration there is nothing equal to it. As a non-conductor it may be used as a

lining for buildings, especially wooden ones; it can be rendered fire-proof, and will keep out cold or heat better than brick or stone. Our space does not permit us to go on and enumerate the many uses to which corn cellulose may be applied—uses so numerous that one is amazed when they are brought under review. The story of corn and corn products is a wonderful one.

What is now proposed to facilitate the greater utilization of the corn crop is a great American Maize Exposition, to be held either at Chicago or Buffalo in 1899. To prepare for such an exposition and to bring out exhibitors will require a large amount of money. The many interests involved it is expected will contribute handsomely, but the mainstay of the whole scheme must be the United States Department of Agriculture, with funds provided by Congress. But it is shown that "not a dollar of government funds will be called for above what the department now has to spend." This can be by using for this purpose money that is now wasted by spending \$130,000 each year for cheap seeds for free distribution. Besides this outlay there is at least \$70,000 more for the transportation of the stuff. This last amount can be saved to the government, \$30,000 can be allowed the Secretary of Agriculture for the discovery and introduction of new and valuable plants, and the remainder, \$100,000, appropriated to the Maize Exposition.

By increasing the demand for corn and corn products every American farmer will be benefitted, and every Congressman can help to make the exposition a success, and thus benefit his rural constituency, by distributing circulars in relation to the subject, which may be supplied by the government. Let us have the exposition!

* *

Horticultural Meeting.

The Western New York Horticultural Society will hold its forty-third annual meeting in this city, commencing on Wednesday, the 16th of the present month, January. This meeting is expected to be of more than usual interest, as some of the best talent in the country is engaged to be present. A wide range of subjects will be considered and discussed, all relating to horticulture in its many phases. Farmers, fruit-growers, gardeners and amateur cultivators will have new facts and new ideas presented to them in relation to the care of the land, fertilizing, treatment of crops, suppression and destruction of insects and fungi, marketing produce, new varieties of fruits, flowers and ornamental plants. Plans have been arranged for a very instructive, interesting and profitable meeting, and a large attendance is expected. All progressive cultivators of western New York should make it a point to attend this meeting, which they will find to be an educational and social stimulus to their practical labors.

Letter Box.

In this department we shall be pleased to answer any questions relating to Flowers, Vegetables and Plants, or to publish the experiences of our readers. EDITOR.

Working a Large Manetti Stock.

Will you kindly tell me, in the MAGAZINE, what to do with a flourishing plant of the Manetti stock? Among a lot of roses which I bought in 1896, one plant was evidently worked on that stock. The budded portion died, but the stock has grown rampantly. Had I better bud or graft some desirable rose on the stock, cleft graft, or graft between the bark and wood, as is now done in grafting the orange, or cut it below the branches to a single stem, or graft on some of the numerous shoots?

Peoria, Ill.

J. B.

The grafting of rose stocks in the open ground is seldom attempted, and still less often is it successful, and for this reason it is not to be recommended. The better way to proceed is to cut the stock this spring, low down, and get a new growth. If two shoots should start both may be allowed to grow, and both be budded in July. The following spring cut away wholly one of the stems, throwing the new growth entirely into one of the buds, thus getting a strong plant the first season's growth.

++

Sweet Peas.

Our sweet peas gave us so much pleasure this year, I must sound a note in their praise. A year since I invested twenty-five cents in a half-pound of Vick's sweet peas. From some I had left over I planted this year a double row, about twenty-five feet long, close under my southern dining-room windows. The ground was newly broken up, old stable manure being used as a fertilizer. They were a constant delight after the blossoms came, growing over seven feet high and blooming profusely for three months. We picked bushels of the lovely flowers. On October 30th I gathered a handful of the sweet blossoms, the last of the season. "Jack Frost" blighted the remaining buds. In our sea-girt town, where the storms from the Bay of Fundy sweep in upon us, even in midsummer, with startling fury, we are forced to provide some sheltered nook for vines like the sweet pea. Mine were only exposed to the soft west winds and reveled in all the sunshine there was until afternoon. They were always peeping in at us and gaily nodding through the windows, which we had only to throw wide open to let in a whole roomful of their delicious perfume. It is surprising what thirsty plants they are! The fogs, so prevalent here, provide a part of the moisture, so necessary. For myself I have no very friendly feeling for the heavy sea fog, the inseparable companion of the south wind, that so often rolls in from the sea, enveloping everybody and everything in a chill embrace; but my sweet peas took very kindly to the fog, requiring fewer visits from the sprinkler on that account. It seemed that the sweet peas gave us more enjoyment this year in return for our labor than any other flower in the garden, except perhaps the pansy, which is blooming bravely yet. I picked a lovely bunch of "superbs" yesterday, November 13, for all the bed was buried out of sight in snow the day before. I have experienced nothing of the sweet pea disease so often spoken of in the floral magazines of late. I am sure that this beautiful flower does not thrive in over rich soil. I tried to cover a hen-house with them one summer, and the vines did their part as a screen, but such a dearth of blossoms was very disappointing. The soil was too highly saturated with guano, the vines growing very tall and heavy.

Cutler, Me.

MES. F. W. T.

++

The Pruning of Raspberries.

In the cultivation of the black-cap raspberries all cultivators agree that the young canes should be pinched back early in their growth to make them branch freely and to prevent a tall growth, which would require a stake or some other support. But in the case of the red raspberries this pinching is not

resorted to, but the canes are left to grow up their full height. Will you please state why there is this difference in treatment, and oblige

A YOUNG FRUIT GROWER.

The difference in treatment is due to the difference in the habit of growth of the black and the red raspberry. The black-caps are varieties of the strong-growing native species, *Rubus Occidentalis*, and when the young upright stems are pinched back they throw out numerous side shoots, all of which bear fruit profusely, and which the plant is capable of supporting. The red raspberries are either varieties of the European species, *Rubus Idæus*, or of the native *R. strigosus*, each of which are of less vigorous growth than the black-caps. The upright stem has strong, plump buds from which will be produced all the fruit it can perfect, and it is even customary to cut away in the spring a portion of the top, or about one-third of the whole length. If these shoots are pinched in while growing, as are the black-caps, the resulting branches will be thin, with small, weak buds, which will supply a crop of small berries. This is the explanation of the difference in the treatment of the black-caps and the red varieties.

++

Palms From Seeds.

What is the proper way to start palms from the seed?

J. H.

Columbus, Ohio.

Some kinds of palms can be successfully raised from seeds by the amateur, while others require the skill and the appliances which only the gardener possess. The seeds of the date palm can be planted early in the spring in the open ground, and will germinate and grow into little plants that can be potted early in autumn. Large numbers of them are raised in this manner in the South of France.

However, it is safer at the north in this country to start the seeds in pots of soil in the greenhouse, and as early as possible in the year. It is necessary that seeds shall be fresh. A six-inch pot is a good size. Place plenty of drainage material at the bottom and then fill to within two inches of the top with light soil pressed moderately firm. Lay the seeds on the surface and cover them an inch deep, pressing the soil firmly down upon them. A sandy loam, or a sandy loam with a mixture of one-third leaf mold is suitable. After the seeds are in place water thoroughly and set the pots in a propagating frame or house where can be maintained a temperature of seventy degrees. The soil in the pots will maintain most evenly its moisture if the pots are plunged in sand, moss, or some other suitable material. Under these conditions some seeds of kentias will start in six weeks, while others of them will lie dormant for months. If one-half of the seeds grow it is as much as should be expected.

Hydrangea—Chrysanthemum—Bulbs—Insects.

1.—I received this fall a Hydrangea, New Red Branched, which has not grown at all since I potted it. Does this indicate that it wants a season of rest, or else what shall I do with it? Apparently it is a young cutting, which has never yet bloomed.

2.—I notice about the plants in my window a little fly with bluish wings. Is it likely to injure the plants, and, if so, what can I do to exterminate it?

3.—Your fall catalogue makes this statement: "No bulb can do itself justice in a room where the temperature is between 70° and 80°." Does this apply to hyacinths only, or to all kinds of bulbs indiscriminately? How is this with regard to narcissus, lilies, freesias, oxalis?

4.—I received this fall two chrysanthemums, young plants, about eight inches high. Will they bloom in the house this winter?

E. W.

Chicago, Ill.

1.—Keep it in a cool place and let it rest as long as it will, giving it in the meantime but little water. By March, or before, it will show signs of starting. Then give it a warmer place and supply more water. When the hydrangea is growing freely it can appropriate a large amount of water.

2.—The little fly will perhaps do no harm, but you can sprinkle some powdered tobacco or snuff on the surface of the soil and thus drive them off.

3.—None of the bulbs named should have a high temperature, sixty degrees is ample, but they are good natured, patient things and will even show some of their beauty in greater heat. But well-grown plants and handsome blooms cannot be produced in a high temperature.

4.—The young chrysanthemum plants may be grown on for blooming next autumn, or they may have cuttings made from them in March, producing plants for next fall's bloom.

++

Trouble With Geraniums.

Can you tell me what the trouble is with my geraniums? When I took them in the house I never had nicer plants, strong and healthy, and had been so and full of blossoms till about three weeks ago, then the leaves began to turn yellow, and at the present time there are no blossoms and but few leaves and those keep turning. They are in a south bow window and have the sun and air. I have given them Bowker's Food for Flowers and have done just the same as I always have, but not with the same results. I send some leaves and hope there is no disease among them.

MRS. F. D. W.

Waltham, Mass.

It is very common for geraniums to appear as here described after bringing them into the house in the fall. The leaves present no appearance of disease. In the first place, the removal of the plants from the open ground was a great check to them, and while the roots are yet inactive the foliage, by transpiration, is parting with the moisture of the plants, and there is no ability to replace it by root action; as a result the leaves must dry and wither. Fertilizing the soil under these conditions can do no good. It is no time to use fertilizers when a plant's growth has ceased, or when it is resting. Fertilizers are for the use of active, growing plants.

The proper course now to take is to give but little water, to keep the plants in a cool temperature, and to cut back the stems so as to leave only an inch or two of last summer's growth on each one. In time new leaves will form, and with the increase of foliage more water will be needed, but one should be careful not to give too much. The roots cannot appropriate a great amount of water until there is an abundance of foliage. When the soil appears dry give water enough to soak the whole ball of earth, and then do not water again until the soil has become dry.

NOTES ON TREE SURGERY.

IT is the purpose of this article to deal, not with tree pruning as such, but with a subject somewhat closely allied. It will have reference to special cases of tree pruning and to the repairing of certain defects which sometimes result from bad pruning. The writer proceeds on the



FIG. 1—A ONE-SIDED STREET ELM.

basis that the generality of ornamental and fruit trees possess value in a degree too often not appreciated by their owners, but which renders it very desirable to know how best to improve them when they become faulty or damaged, in order to add to their beauty and longevity.

The first case to be considered is that of a street elm, shown sketched from life in figure 1. The fault of this tree is that it has grown decidedly one-sided. At thirty feet in height, if a perpendicular line *a* had been projected up from the root, it would have shown at least nine-tenths of the branches on one side of such a line. What made matters worse as regards the future of this thrifty young elm was that it leaned in the direction of the prevailing winds, clearly indicating that the fault became greater as years rolled by. In his perplexity as to what should be done, the owner called for advice on how to treat the subject.

The remedy prescribed was simple, if heroic. It consisted in cutting branches at the cross lines as shown in the engraving. In this way branch *b* was entirely gotten rid of beyond the junction of *c*. The strength of the new growth was forced mainly into branches *d* and *e* and as the tree was vigorous, twelve months saw a material change in the shape of the head. Figure 3 shows the appearance of the tree five years later, and along side it figure 2, the shape of the tree later, had the saw and knife not been so effectively applied.

Street and lawn trees having the defect of the one here instanced are not rare. Sometimes the trouble has its origin at the day of planting, by setting the young tree, with its main branches leaning away from, instead of towards, the wind, the latter being the only safe position as to this point.

An arrangement of tree branches that is not uncommon, is that of the faulty crotch shown at *a* figure 4. Sometimes it is met in orchards but more frequently in street and other ornamental trees. A very usual outcome of such a defect is that the tree splits from the crotch downwards. In some instances the split in time leads out to one side, causing one half of the tree to fall away, leaving an ugly-looking remnant. That a crotched tree should split is easily understood, as we consider the likelihood of the crotch in time becoming a holding place of some water, and then the tremendous expanding power of frost, in case any accumulated water in the fork crevices is turned into ice.



FIG. 2—THE FUTURE SHAPE OF FIG. 1 HAD IT NOT BEEN TREATED.

How can such a tree be treated for overcoming the danger of splitting? A simple appliance that occurs to many, is that of placing a heavy iron or other metal stay around the branches as shown at *a* figure 4. Here the aim is right, but the means employed are very faulty. The reason why this is so is because any kind of metal band, placed closely around the bark of a growing tree, is in itself sure to cause trouble, sooner or later, through not accommodating itself to future growth. This is frequently illustrated in so little a thing as a label secured to a branch by a wire. If the label wire snugly encircles the branch in a few years the growth will so extend as to cause the iron to cut the bark and, in some instances, along with the increased weight of the branch, to cause the amputation of the branch.

In the case of the crotched tree under consideration, amputation by the wire might never occur because of the larger size of the branch at the start, but what

would be sure to follow in time, if the tree preserved any thrift, is the thing shown at *b* figure 4. This is a protuberance of growth encircling the branch above and below the wire, the presence of which would be eventually out of keeping with good tree management. Sometimes the writer has seen a band of iron as at *c* used around each branch instead of the one direct, for the reason that a broad band is seemingly less liable to cut the bark. Temporarily this might be true but in the long run the one case would be quite as bad as the other, as our figure suggests.

What is wanted in place of any encircling stay in such a case, is a rod of iron as shown at *d*, the same to extend from branch to branch as at *a*. In this case the stay is passed through the branches, one end having a head, the other a thread and nut. An augur bit carefully used, provides the hole for admitting the rod. In most cases the stay should be of not less than inch iron. The advantage of this over the encircling stay is readily understood. First—the bark which, in its inner layers, is the live part of a tree, is hardly so much as disturbed. Second—In a few years time the bark will close over the nut, as shown at *d*, and grow snugly against the rod on the opposite side of the branch, thus in no wise interrupting the growth. Lastly—There is a degree of firmness and fixedness in such a stay that is not to be found in any other. Indeed the use of the rod, with head and nuts, the latter bearing against the solid wood, permits of the branches being drawn so snugly towards each other, that there is almost perfect rigor in the triangle formed by the brace and the fork, the exact end



FIG. 3—THE SHAPE OF FIG. 1 FIVE YEARS AFTER TREATMENT.

sought. The nuts should have a setting provided by blazing slightly into the wood at right angles with the bored hole and at its outer end.

The last operation to be described is that of filling decayed parts of a tree, somewhat as a dentist fills a tooth. It is very common to find that where the lower

branches of street trees have been cut away, that holes are present caused by the decay of bad stumps, as shown in cross-section at *a*, figure 5. To leave such apertures without treatment is to in time see their enlargement, with the extending of the decayed part down into the heart of the tree as shown at *b* in the same fig-

A WORD FOR THE GIRLS.
BUT what have you been learning at school, then?
 "We learned Latin," said Tom, pausing a little between each item, as if he were turning over the books in his school-desk; "a good deal of Latin; and the last year I did themes, one week in

I would not for a moment advocate that girls "remain within a circumscribed sphere," on the contrary I think the broadest culture possible should be accorded them, but whatever this culture may include, it should not exclude the art of housekeeping.
 MRS. W. A. K.

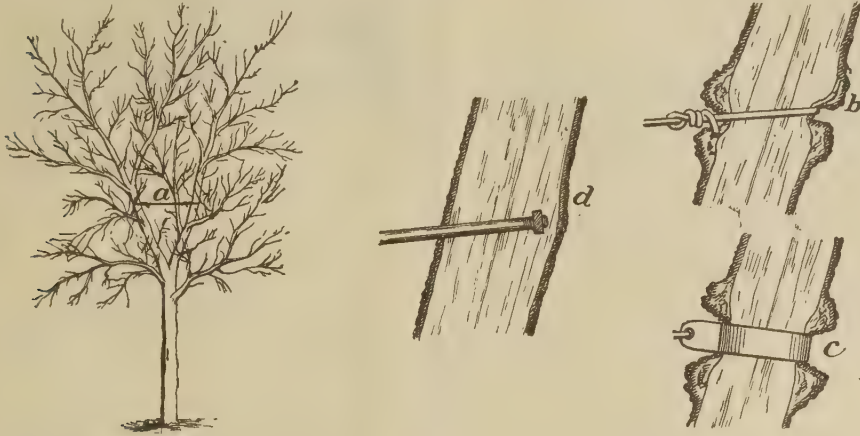


FIG. 4—ON APPLYING STAYS TO SPREADING BRANCHES. *a*. THE STAY. *b c* STAYS THAT DAMAGE THE TREE. *d*. A PROPER STAY.

ure. This is a common cause of trees becoming hollow, and which means becoming weak and short-lived, for a hollow tree is always a greatly impaired tree.

How orifices, as in trunk *a*, may be treated for the good of the tree, will be explained in connection with trunk *c*. The treatment is to consist of cleaning out the decayed parts of the trunk, by the use of a half-round chisel or gouge, so that a fairly clean and even surfaced orifice will be present. For the filling common hydraulic cement, made a little stiff, is to be used. This, after mixing, is to be quickly filled into the apertures, probing it by means of a pointed implement to the very end, and finishing it at the outside even with the inner bark. To have it snugly fill the place a little pressure may be brought to bear against the outside of the filling until it is set.

Where the great advantage of such a filling appears is, that in the first place air and moisture are shut out from the heart of the tree, hence preventing further decay. More important still is the fact, that the presence of a cement body at the back line, serves as a bridge in enabling new growth, including new wood in time, to close over the cement, as shown in trunk *d* of figure 5. Instead therefore of a decaying and weakened tree trunk like *b*, it is possible to have a fully restored and practically sound trunk as at *d*. As trees possess value such an end is one that should by these simple means be sought.

SPECIAL CROP.—Try to raise some crop different from those of your neighbors, becoming skilful in its management, producing a fine and desirable article, and finding a home market for it with little competition.

Latin and one in English; and Greek and Roman History and Euclid; and I began Algebra, but I left it off again; and we had one day every week for Arithmetic, then I had drawing lessons; then we learned English Poetry and Horæ Paulinæ and Blair's Rhetoric, the last half." "Well," said his uncle Deane, in rather a cold, sardonic tone, "hadn't you better take up some line where they'll come in handy?"

The above quotation from "The Mill on the Floss" occurs between Tom Tulliver and his uncle, to whom Tom applies for information concerning some lucrative position. Tom has been at school, or rather under a high-priced tutor—now it is necessary that he should earn his bread. How poorly he finds himself equipped for the work.

Now-a-days it seems that with all their boasted training, our girls feel about as Tom Tulliver did in the presence of his matter-of-fact uncle, when they assume the duties of housekeeper; they must be adepts in so many things, when they take upon themselves this comprehensive title. And it is scarcely fair to expect so much from them when so little opportunity has been given them to develop the practical or domestic side of their nature. They, like Tom, must spend their school years in acquiring accomplishments, and no time is left in which to become skilled in the art of domestic economy.

Is there not urgent need of combining a utilitarian course of study with the curriculum which professes to furnish a general education? In plain words, should not our daughters be taught to cook, to keep house, to *understand* that ignorance is the cause of a large percentage of infant mortality, that, in short, they must be prepared for the manner of life they are most likely to lead.

HARDY FLOWERING PLANTS—Every garden, however small, should have a supply of hardy herbaceous flowering plants which are sure to bloom in their season every year, some in spring and some in summer and autumn. With these in their place the garden will never be flowerless even if, from some cause, other plants should fail.

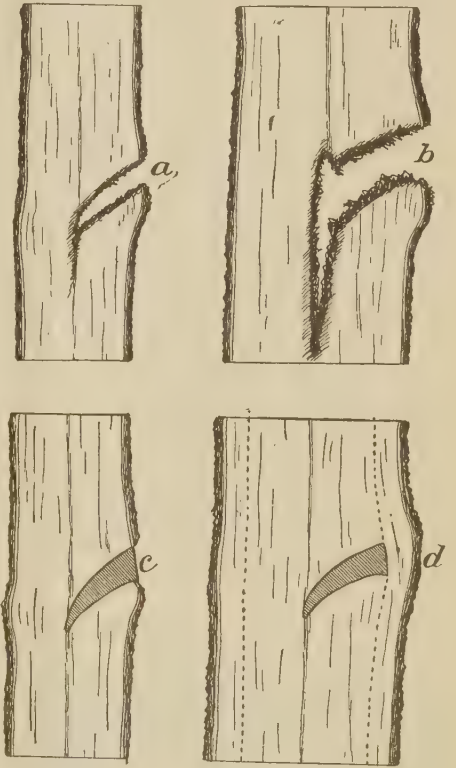


FIG. 5—AN IDEA FROM THE DENTIST ON FILLING THE CAVITIES. *a* CROSS-SECTIONED VIEW OF A CAVITY. *b* CAVITY IN OLDER TREE, WITH NEW DECAY WELL ADVANCED. *c* A CAVITY FILLED. *d* FILLED CAVITY WHOLLY GROWN OVER.

Sharp Pains.

Every Movement Causes Suffering—This is Rheumatism.

Rheumatism is a disease of the blood. Medical authorities say so. It is caused by lactic acid. The way to cure rheumatism promptly and permanently is to take Hood's Sarsaparilla, which acts directly upon the blood, neutralizing the acid and removing the cause of the sharp pains, stiff joints and aching muscles peculiar to this disease. Thousands testify that they have been cured of rheumatism by

Hood's Sarsaparilla.

The Best—in fact the One True Blood Purifier.

Hood's Pills cure nausea, indigestion, biliousness, 25 cents.



Plan the garden now.

House plants notice the longer days.

The more subscribers the better the magazine.

Applying artificial manure to house plants is often overdone.

You expect to make a hotbed. Then straw mats will be wanted. This is the season to make them.

The secret of fruit storage is found in a uniform temperature, and that as low as possible without frost.

Hubbard squashes and others of that class, do not winter well in a damp or warm cellar. The best place for them is a dry room, having a temperature of about fifty degrees; here they will keep safely until April or May.

A Winter Crop. Unlike an outdoor harvest the subscription crop of this MAGAZINE should meet its greatest growth in mid-winter. But like good garden crops, to grow well it needs the help of our gardeners and fruit-growers. Garden lovers will you help on this crop? We would like to count on the service.

Amaryllis Bulbs. Many cultivator have failed in growing the amaryllis because they have planted the bulbs under the soil as they would a gladiolus or tulip. Under such circumstances it is hard to get them to do a thing. Set them just on top of the soil, and this culture becomes a success from the start.—*L. E. Gainley.*

The Size of Pots. Let us take a hint from the professional plant-grower and not have the pots too large. It is quite surprising to see what a mammoth fuchsia or geranium will grow in a five-inch pot. The secret of their success: good soil, proper watering and airing. We believe that the average house plant is in too large a pot.

January Seed Sowing. With the lengthening days some seed sowing is in order. You will want some sweet alyssum for the window by and by; even now it should bloom before April. Ten week stocks sown in January should show flowers by May. Mignonette, maurandia, lobelia and petunia, are likewise suited to present sowing.

Sowing Black Walnuts. Our correspondent, "N. R.," living in Western New York, states that she recently brought some very fine black walnuts from Virginia and wants to plant them in her own grounds. Having heard that walnuts do not transplant well, she applies to us regarding the best course to pursue in raising trees from the nuts. In answer we would say that walnuts do the best to plant them about three inches deep as soon as fully ripe. It answers to defer the planting until spring, provided the nuts are stored in a cool, moist place during winter, as in a box of earth buried in the garden.

Petunias. For pot culture quite as well as for lawn decoration, both the single and double

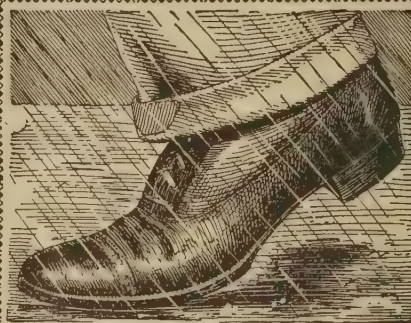
petunias are very suitable. Considering the care with which they may be grown; the beauty and freedom of their bloom, especially in the single varieties and their long season; and it is indeed hard to find any plants better suited to the amateur's needs. To raise pot plants from seeds select your seeds in January and sow at any time up to March. Petunias have the smallest seeds and such in sowing should be covered very lightly. It is a good plan to sow in a pot, covering the pot with glass until the seedlings are up. With the use of the glass less water is necessary, which is an advantage in the case of such fine seed. As soon as the seedlings are up so that they can be handled, they should be pricked out into a pan, afterwards giving each plant a two-inch pot to itself, later shifting on as growth demands.

The Hardy Flowers. If your beds of day lilies, phloxes, campanulas and that class have not been rearranged in a number of years it may be well to put that down on the list of things to be done at the opening of spring. This class of plants are much the finer for an occasional division of the roots and resetting into freshened soil. The best way of going about this matter is to take up all the plants and covering them lightly until they are replanted. Then dig over the whole border two spades deep, working some rich manure into the beds the full depth. The work of dividing the plants may best be done with the edge of a sharp spade or large knife. The strongest portions of the clumps should be reset into the beds, changing their positions from where the same kinds stood before, on the principle of crop rotation.

Watering House Plants. In last months' article on house plants I do not think enough stress was laid upon the importance of proper watering. I am satisfied that not one person in twenty is aware that too much water is more dangerous to the plants than too little. Some gardeners seem to have the idea, that to take a watering pot in hand to supply the needs of plants is an easy duty, and that to give a dash here and to soak the soil there, is all there is to the matter. One thing is to be observed: All plants under all circumstances, nor, indeed, the same plants under different circumstances require the same amount of water. It is necessary, therefore, to study the nature and habits of kinds so that each may be treated according to its needs. A vigorous blooming plant, say a fuchsia or geranium, might be said to represent the maximum need of water; the same when in a state of rest, in cool damp weather, the minimum requirement as to this. Therefore, to give exactly the same quantity of water in both conditions named, would be to cause harm by not giving enough water to some and too much to others. One safe rule is to wait until the ball of earth begins to get rather dry, and then to give enough water to moisten the soil through and through. Then do not water again until the former state of dryness is reached, be that time six hours or six days. It is likely that the extreme of needs will at different times and conditions be as great as those just named.—*Subscriber.*

CONSUMPTION CURED.

An old physician, retired from practice, had placed in his hands by an East India missionary the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma, and all Throat and Lung Affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints. Having tested its wonderful curative powers in thousands of cases, and desiring to relieve human suffering, I will send free of charge to all who wish it, this recipe, in German, French, or English, with full directions for preparing and using. Sent by mail, by addressing with stamp, naming this paper, W. A. NOYES, 820 Powers Block, Rochester, N. Y.



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ROBERT H. FOERDERER, Philadelphia, Pa.

ROSE CECILE BRUNNER.

The popularity of this pretty rose is increasing. The flowers are exceedingly tiny, and yet so perfect in form as to give one the impression that they are moulded in porcelain. The comely little buds, of a warm carmine and flesh tint, would be found very useful by florists. It is one of the most vigorous varieties of the dwarf section of these beautiful Polyantha roses, and an excellent kind to plant where a low edge is wanted. Although not so decorative as Gloire des Polyantha, on account of its more branching habit, it is, nevertheless, highly attractive where grown in mass.—*A. D., in The Garden.*

OUR FOREST EXTRAVAGANCE.

Muir, says the *Review of Reviews* for October, in the course of an appeal for the preservation of the trees on our public lands, calculates that between 1881 and 1888 there was stolen from the government lands timber to the value of \$37,000,000, while the amount received under our almost ineffective timber culture act was less than \$500,000, and the cost of the special agents to carry out this act was \$450,000. Under this legislation millions and millions of acres of forest trees have been destroyed or passed into private hands, while less than 50,000 acres have been planted. Doubtless the world has never seen such a case of reckless, foolish extravagance on the part of a nation as our forest management shows. The continent was originally enormously rich in trees, having about 500 species, chief among which were the sequoia, with their tops 400 feet above the roots and trunks more than twenty feet thick. Notwithstanding such a beautiful heritage, America threatens to become as barren as any of the played-out European or Asiatic countries. Aside from stealing, Mr. Muir tells of the destruction wrought by sparks from railroad locomotives, mining camps and sheep-pasturage fires. Then the trees that are cut are removed in such a way as to destroy many around them. The small trees are mutilated, and the people occupied in making "shakes" cut down trees 250 feet high for the sake of using only ten or twenty feet of the trunk. Others cut deep into thousands of trees as a test, and then leave them to die without using them.



"NOTHING BUT LEAVES."

I often hear women say: "I would like flowers in the window, through the winter, but I cannot make my plants bloom, because there is not sun enough, and we have furnace heat." One thing is certain, if the air in the sitting room is too hot and dry, with a little gas mixed, it is as bad for human lungs as for plants. But with a good furnace or base-burner, with a kettle of water placed on top, there ought to be no trouble, even with partly shaded windows, to raise foliage plants, if their small wants are studied and ten minutes a day devoted to their care. First on the list I will place the palm *Latania borbonica*, and on a shelf or table by the window the following: The *Abutilon*, *Souvenir de Bonn*, with its white margined leaves, pretty enough without flowers and handsome with them; *Cyperus*, or umbrella plant comes next, a well grown specimen being very graceful; there must be *Farfugium grande*, with its rich, glossy leaves, spotted with yellow; and lastly, a *Grevillea*. None of these are hard to grow. One or two little things they insist on, which no self-respecting plants will go without: That their leaves be kept clean, and that the temperature of the room does not get too low. I have brought my plants through many a zero night by having a pile of newspapers handy to tuck between them and the window, and if very cold, above and around them. These thrifty green leaves, before one's eyes and the dreary expanse of snow without, is a great relief, and winter does not seem half so cheerless. One great friend among the foliage plants is a rubber plant. If an oil cloth is underneath the shelf, or stand, the pots need not be removed to be syringed, but a fine spray removes the dust and insects. The palm will last for years and seem like a dear old friend. The other plants will do very well for several seasons if planted out in a shady place through the summer, and well cut down. A. L.

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CLEMATIS JACKMANI.

I notice from what I have read in the MAGAZINE that *Clematis Jackmani* is considered more difficult, to raise than other varieties of clematis. I am surprised at this, as I have no plant in my yard that is easier grown. Some ten or twelve years since I bought a good strong plant, which bloomed quite freely the first season after being set in the spring, and has never since then failed to bloom most profusely, the deep velvety blue flowers making a grand display. I have also planted in the fall with success. I much prefer a strong plant to begin with, and always prepare the ground, previous to setting, in the following manner: First, I dig a place two feet deep and the same or more in width, then I take well rotted manure from the farm yard, and a smaller quantity of droppings from the poultry house, also a good pailful of unbleached ashes, and last of all if there is plenty of charcoal in the ash bin, I add a couple of quarts of it. There should be a sufficient amount of fertilizers used to make the soil good and rich, then when soil and ingredients are so thoroughly mixed that all is of a color, I pack the whole down somewhat, and be sure to fill the cavity so that when it has settled there may be no hollow spot, but instead slightly rounded; then I set the plant and when the soil is nearly filled up around plant pour in two or three quarts of water, and when that has settled down I draw the dry soil over, and the work is done, this one wetting being sufficient.

About once in five years some fertilizer as above should be well forked in around the plant. My plant has been enriched only once since the first setting. When the weather becomes cold I cover with three or four inches of prairie hay, or straw will answer. I hope the above may help some of the many readers of the MAGAZINE to succeed with this beautiful plant, which always attracts attention and should be in every yard. There is no plant that blooms more freely, as often the flowers nearly hide the foliage.

Medo, Minn.

M. L. W

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THE CRIMSON RAMBLER.

Probably there has been more written and said about the *Crimson Rambler* rose than any other of recent introduction. So much was said in its favor that I really wondered if half were true and resolved to test it for myself; accordingly I have now three plants under cultivation received from three prominent florists. Only one has bloomed, but the others are growing finely, and next year I expect to revel in

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Crimson Rambler roses. The plants are perfectly hardy here in Webster, N. Y., even small specimens withstanding our cold, changeable winters with only a mulching at the roots, which I always give even the hardy roses. The *Crimson Rambler* is not an ever-bloomer, as has been represented by some florists; it blooms only in June or July, according as the season is early or late. Mine reached perfection early in July this year. Its color is a vivid intense crimson, which artists have in vain tried to imitate. The shade resembles that of the *Jacqueminot* or *Meteor* the nearest of any variety of roses I have ever seen. The flowers are borne in immense clusters, and for durability surpass any variety I have ever cultivated; remaining in a fine condition for ten days under circumstances peculiarly trying, as the thermometer was registering away up in the nineties in the shade, and my blooming specimen was in the rose bed with a southern exposure, entirely unprotected from the sun's rays. The extreme heat was followed by heavy rain and hail storms, and still the blossoms were in a good condition. This quality of durability alone renders it extremely valuable alike to the professional grower and the amateur. The foliage is a bright vivid green in color, having an appearance as though varnished, and is peculiarly free from the ravages of insects common to the rose. It is a fine rapid grower, and is especially valuable as a bedder pegged down or grown as a climber. Unfortunately the blossom is odorless.

E. F. F.

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WILD FLOWERS IN WINTER.

Have any of your readers tried to make wild flowers bloom in the house in the winter? In the autumn, before frost, I took some *Columbines*, in the woods, carefully potted them, and left the pots out in a sheltered spot till three weeks after winter was well set in and snow was on the ground. Then I took them, while they were frozen hard, into the cellar and put them in the coldest part of it. I was trying to imitate nature's seasons as nearly as possible—a short winter outside, then a cold, chilly March—represented by the coldest part of the cellar. After remaining a week in the cellar I daily deluged them with water, and that represented the April rains; I moved them a little nearer the furnace at the same time. For May, I took them up to the bath room and put them where it was sunny; the bath room furnishes a moist atmosphere to represent May. They grew well and quickly. For June, I took them to the sunny parlor window with the blossoms all ready to burst, which they did, leaving beautiful flowers. The colors were a little paler than they are naturally, but not much when out in the open.

Everyone who saw them admired them, for wild flowers are rarely seen in the house in winter.

Boston, Mass.

J. P. R.

**

MUSLIN IN PLACE OF GLASS.

For years past I have done quite a good business in raising cabbage, tomato, sweet potato and flowering plants, and have only two glass sash and thirty-six that are covered with muslin. I commence sowing seed in February under the glass and continue sowing until April. The muslin on the first frames is covered with linseed oil, and the later ones as the weather gets warmer are unveiled. To have nice stocky plants the soil in the muslin-covered beds should come up to within four or six inches of the sash. I sow in hills three inches apart and transplant into other frames when the fourth leaf-forms appear. Last year I grew several thousand heads of lettuce under muslin sash, and never saw a finer product raised under glass.—J. O. A., Norfolk, Va.

CATARRH CAN BE CURED.

People are beginning to learn that CATARRH is a local disease, caused by repeated colds in the head, causing enlargement of the soft bones of the nose, thickening and ulceration of the lining membrane with its constant discharge of unhealthy mucus and pus; that every breath is tainted before the air reaches the lungs; that it is the cause of the constant hawking, expectorating, nose-bleeding, headaches, partial loss of hearing, noises in the head, deafness, impaired vision, lassitude, debility, loss of rest and impaired appetite, and bad breath; that it is the principal cause of bronchitis, pneumonia and consumption of the lungs; THAT IT CAN ONLY BE CURED BY LOCAL TREATMENT; that the AMERICAN CATARRH CURE is the only remedy known that can cure the disease; that it is not a patent medicine, but the private prescription of a physician, who devoted twenty-six years to the study and treatment of the disease, and who thought the time had come when the public should have the benefit of his experience.

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CANTERBURY BELLS.

In the dear old-fashioned garden,
That I remember well
There grew, 'neath white syringa,
The Canterbury Bell
With blossoms deep in color
As twilight's purple veil,
Its scentless flowers blooming
Beside the lilies pale.

Those dear old-fashioned flowers
Seemed to me, when a child,
The chiming bells of elfland,
Of garden fairies wild,
Who rang them in the breezes
Oft through the summer day,
Inviting bees to blossoms
To carry sweets away.

Today, those bells are ringing
Their chimes so sweet and wild,
In memory's treasure garden,
As when I was a child,
Awaking recollections
Of happy vanished years,
When in the shady garden
I knew not grief nor tears.

RAY LAURANCE.

* *

OBSERVATIONS ON THE CENTURY PLANT.

Since preparing the article in the present number in regard to the century plant a number of the *Revue Horticole* has been received which contains an account, by Robert Roland-Gosselin, in regard to plants of *Agave Americana*, which grow in great numbers along the shore of the Mediterranean, between Nice and Villefranche, a region where the writer resides, and he is, therefore, able to make the statements which he does from actual observation. The writer refers to the popular notion that the century plant requires a hundred years in which to become of blooming age, and thinks it is time that the error should be corrected. The blooming age should not be considered as determined by specimens grown in pots or boxes, but those in favorable conditions in the open air, and such conditions are found on the shores of the Mediterranean, where throughout its entire length, on both banks, this agave grows of large size, blooming and multiplying by thousands. The particular locality the writer has in mind is a route between the points already named and which was finished in 1859. When completed it was planted with offsets of *Agave Americana*, in great numbers, for the purpose of binding together the rocks and soil of the embankment. Beginning with the year 1871 a great many of these plants have bloomed every year, and the plants now growing there are offsets from those first planted. Generally, he continues, *Agave Americana* does not bloom before it has attained a certain size. Flowering depends upon the development of the plant rather than upon

its age. A plant under favorable conditions will bloom in twelve or fifteen years; another poorly situated will remain small and will come into bloom only after a much longer time and when it has finally attained its full size. If a very large plant of *Agave Americana* is transplanted, there is a good chance of seeing it bloom in one or two years after. As to the size of the plants growing in the open, in the region named, the writer states the medium height is five feet nine inches (one and three-fourths metres), and that he has often seen them six and a half feet (two metres) and more. The flower stem attains generally sixteen and a half feet (five metres); he does not think that they often exceed twenty-three feet above the plant.

* *

THE FUTURE OF CUBA.

Even if Cuba should be kept by Spain, there is no prospect that it will yield further streams of wealth to Spanish coffers. Its tobacco and some other crops may become measurably profitable again in the early future; but the great sugar crop, once the source of immense wealth, is probably a thing of the past—at least as a revenue-producing factor. American capital and ingenuity might do something for Cuba, in spite of the permanent victory that beet sugar seems to won over cane sugar; but Spain can never bring back smiling prosperity to the Gem of the Antilles.—*American Monthly Review of Reviews* for December.

* *

FLOWERS IN THE WINDOW.

Lord Nelson once said something to the following effect:

The best testimony to proper and happy management of household affairs is borne by the windows of the house. If flowers are to be seen through the well polished glass, one can be certain to find a good table and orderly children. The windows indicate the character of the inhabitants of the house.

Flowers are an important element in education and never fail to exercise a civilizing influence.

* *

New Jersey Horticulture.

The annual meeting of the New Jersey State Horticultural Society is to be held in Trenton, January 5 and 6, 1898. This society is one of the most active and progressive in the country, and its meetings are of the highest interest to all concerned in gardening and fruit culture. The society is doing admirable work for New Jersey, Southern New York and Eastern Pennsylvania, and its influence radiates far beyond these regions.

* *

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KEEPING THE SAVORY HERBS.

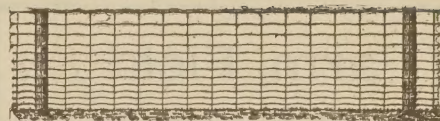
I think myself behind no other housekeeper in the rows of fine jarred fruit I can show on my pantry shelves. But in comparing notes with others I find myself able usually to point out one attraction on my shelves that is missing in many homes. I refer to the tin boxes filled each season with garden herbs. These boxes are uniform in appearance and when regularly kept in a row, with each one neatly labelled, they are real attractive. The names they bear are as follows: Sweet marjoram, coriander, anise, caraway, summer savory, balm, sage, dill and sweet basil. How anyone can cook acceptably for a family of six, without raising and caring for a general variety of herbs, is more than I can imagine. I would as soon think of skipping potatoes from my list of supplies.—*Mrs T. E. Graves, Story Co., Iowa.*

**

THE NEW RACE OF CLEMATIS.

In our September number, page 176, descriptions were given of the three new varieties of clematis originated by George

Jackman & Son, of England. The *Garden*, of October 16th, sends out a fine colored plate of them, showing them to be very handsome bell-shaped flowers. The darkest one, Countess of Onslow, is said to be a violet purple, but as shown in the plate we should call it purplish crimson. Duchess of York is a delicate blush pink, and Duchess of Albany is a bright pink, deeper in the center. The flowers are about two inches in length, tubular bell-shaped on opening, but perhaps spreading broader later, as the flower of Duchess of York appears to show in the plate. They are evidently quite handsome, and are said to keep well after being cut. The journal mentioned says that "they are strong growers and flower freely from the young wood." As the plants are hybrids produced by crossing *Clematis coccinea* with the large-flowered sort, *Star of India*, they are mentioned as a new race, and sure to be a great acquisition to the already long list of hardy climbing varieties.



The Locomotive Engineer

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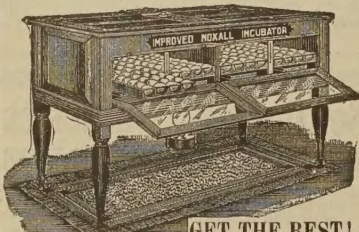
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